The Role of Language Barriers in Cancer Screening & Diagnosis

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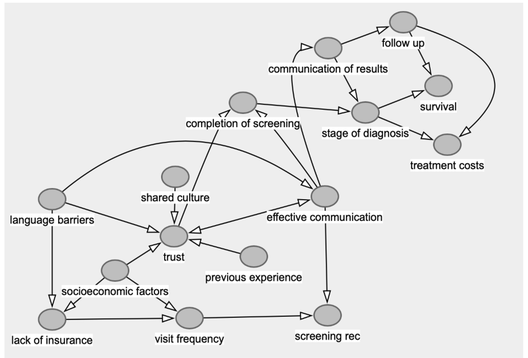
Abstract

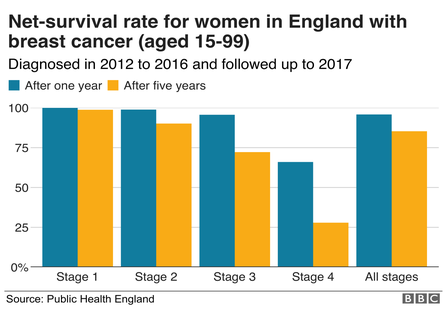
This systematic review looks at studies assessing the role limited English proficiency may play in the receipt of screening and how that may affect the stage at which an LEP patient is diagnosed. By conducting two individual searches, the first examining the relationship between language barriers and cancer screening and the second between screening and stage of diagnosis, this review serves to show the correlation between language barriers and stage of diagnosis, which is a critical but understudied topic. Made by searching through multiple databases, sifting through the results, and reading dozens of abstracts, this review is compiled of studies that both met the inclusion criteria and weren't greatly influenced by other factors besides language. It was made to show the patterns that exist in health care and reveal the disparities that people with language barriers may face in receipt of cancer screening and time of cancer diagnosis.

Introduction

This directed acyclic graph (DAG) was created to better analyze the causal relationships between variables that may influence screening rates and time of diagnosis. It shows the direct relations between language barriers, communication, screening, and stage of diagnosis.



Language barriers have proven to be a prevalent obstacle in a limited English proficiency (LEP) patient's ability to effectively communicate with their doctor and receive treatment accordingly. Being that breast and cervical cancer can be properly detected and diagnosed by the employment of screenings, the communication barriers present at the time of a visit may delay the receipt of a screening and potentially the stage of diagnosis. According to the American Cancer Society, the 5-year survival rate by stage for breast cancer is 99% for localized, 86% for regional, and 27% for distant. The 5-year survival rate by stage for uterine cervix cancer is 92% for localized, 56% for regional, and 17% for distant. This bolsters the argument that the sooner breast or cervical cancer is diagnosed, the greater the chance of survival. Hence, language barriers that impede LEP individuals from being screened and diagnosed at an earlier stage may put them at a significant disadvantage. The purpose of this systematic review is to assess studies that could help identify the correlation (if one exists) between language barriers and stage of diagnosis. By doing this, we can work to better understand how certain policies and changes made to Section 1557 of the ACA will impact the LEP population's access to healthcare. It will also help us better identify and address the obstacles they face.



Methods

Search 1 (conducted exclusively on PubMed):

1. Qualitative or quantitative study (not including reviews or analyses) that looked at LEP populations or English-speaking ability.
2. Specifically examined the receipt of breast cancer screening (either CBE or mammogram) or cervical cancer screening (pap test) and factors contributing to time of cancer screening.
3. Conducted anywhere from 2000-2020.
4. Conducted in the United States.

Search 2 (conducted exclusively on Sematic Scholar):

1. "Related to" the Jacobs 2005 study found from the first search.
2. Qualitative or quantitative study (not including reviews or analyses) that looked at LEP populations or English-speaking ability.
3. Specifically examined the receipt of cancer screening and factors contributing to time of cancer screening.

Search 3 (citations found on other papers & systematic reviews)

1. Referenced by other papers or systematic reviews that had been found in the previous processes.
2. Qualitative or quantitative study (not including reviews or analyses) that looked at LEP populations or English-speaking ability.
3. Specifically examined the receipt of cancer screening and factors contributing to time of cancer screening.

I then conducted a search to see if there was a relationship between screening rates and stage of diagnosis.

Calculations

Calculating Odds Ratios:
To properly compare the results of the studies, I decided to construct a forest plot that would, in essence, display the ratio of the screening rates of the LEP population to that of the EP (English proficient) population based on the data gathered by the study.

People that met any of the following criteria were counted as part of the LEP population:

- spoke no English
- spoke another language more fluently than English
- language spoken at home is not English

To calculate the odds ratio, I began by individually looking through the studies to see how many people from each "group" had been screened. In some cases backtracking when given the odds ratio was necessary in order to pool together the numbers of those in the study who would classify as experiencing language barriers.

The "treatment" group represents those who experience language barriers, while the "control" group represents those who do not experience language barriers.

	"Treatment"	"Control"
Received screening	a	c
Total people	b	d

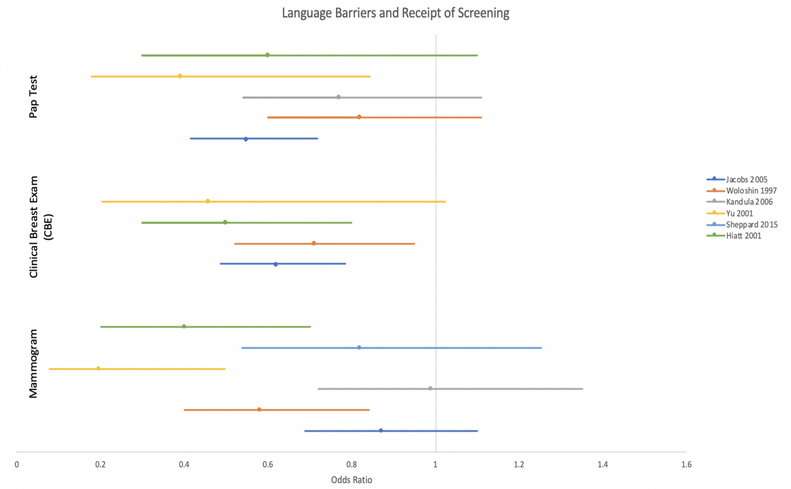
Calculation for odds ratio: (a/b)/(c/d)

I then graphed the odds ratio and 95% confidence interval for each study and plotted the lines on my forest plot.

Why Odds Ratios:

- used to compare results of studies to see if they are aligned
- commonly used to measure effect size of treatment
- plotted on forest plot to see results of studies side by side

Results



I represented the relevant studies I found on a forest plot to adequately display the screening rates for people experiencing language barriers as compared to those who spoke English proficiently. As can be seen, all the studies had odds ratios less than 1, which shows that those with language barriers are tested at lower rates than those without.

Being that the relationship between screening rates and stage of diagnosis was fairly obvious, I was not able to find any studies or research papers that studied the correlation.

"Early detection of cancer greatly increases the chances for successful treatment. There are two major components of early detection of cancer: education to promote early diagnosis and screening."

This statement put out by the World Health Organization clearly displays the relation between screening and diagnosis and explains that both are key in early detection of cancer.

Conclusion & Implications

People who have language barriers are less likely to be screened than those who speak fluent English, resulting in the decreased likelihood of them being diagnosed at an early stage. This indicates that there is a lack of effective communication between the LEP patient & the physician during the visit in which a mammogram, clinical breast exam, or pap test is recommended. Furthermore, by planning an intervention at this step and using interpreters to facilitate communication, we could effectively work to reduce the disparity that results from language differences.

The use of an interpreter during doctor's visits could, by facilitating effective communication, allow for the patient to be screened and diagnosed at an earlier stage, which would both reduce the overall cost of treatment and improve the chance for survival. However, because the intervention of an interpreter also relies heavily on state and national policies, further research could be done to see how certain policies may affect interpreter usage or screening rates among the LEP population. Specifically analyzing the effect of the new changes to Section 1557 of the Affordable Care Act using a difference in difference estimation would allow us to accurately evaluate its impact. Doing this would also allow us to measure its effectiveness. Another policy whose effects should be studied and monitored to a greater extent is Texas' reimbursement policy for interpreters. Unlike some other states, Texas only offers reimbursement for sign language interpreters, which may adversely impact those that require vocal language interpreters.

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